United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
81440-2007-F-0260

July 2, 2008

Gary Ruggerone
Senior Environmental Planner
California Department of Transportation
50 Higuera Street
San Luis Obispo, California 93401-5415

Subject: Programmatic Biological Opinion for Highway 1 Management Activities that Affect the Smith's Blue Butterfly, Monterey and San Luis Obispo Counties, California (1-8-07-F-68)

Dear Mr. Ruggerone:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion regarding the California Department of Transportation's (Caltrans) maintenance and repair projects along California Highway 1 that are likely to adversely affect the federally endangered Smith's blue butterfly (*Euphilotes enoptes smithi*). This biological opinion, which has been prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act), evaluates the effects of certain activities, authorized and/or funded by the Federal Highways Administration (FHWA) and carried out by Caltrans, on the Smith's blue butterfly along the Big Sur coastal portion of California Highway 1 in Monterey and San Luis Obispo Counties, California. The FHWA submitted the request for formal consultation on December 20, 2004. The request was received in our office on December 23, 2004.

Since the initiation of formal consultation, FHWA assigned and Caltrans assumed responsibilities for consultation and coordination with resource agencies for most transportation projects within the State of California. The delegation of authority stipulates that correspondence regarding consultations be addressed to Caltrans, even if FHWA initiated the consultation. Consequently, we have addressed this biological opinion to Caltrans in accordance with this direction.

This biological opinion was prepared primarily with information provided by Caltrans, including the Biological Assessment Programmatic Evaluation of Highway 1 Management Activities that May Affect the Smith's Blue Butterfly (2004), the Big Sur Coast Highway Management Plan Corridor Intrinsic Qualities Inventory (2001), the Big Sur Coast Highway Management Plan Site Restoration Guidelines (2002), the Big Sur Coast Highway Management Plan Guidelines for Vegetation Management (2004), and other information available in our files. A complete administrative record of this consultation is available at the Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

At the time of your request for formal consultation, it was not clear that there was a sufficient Federal nexus for the activities described in your biological assessment. This issue was not rectified until FHWA delegated its discretionary authority for consultation and coordination with resource agencies in California to Caltrans on July 1, 2007. In addition, there was continuing dialogue between our offices on details of the proposed project to better understand the potential effects to the Smith's blue butterfly.

In an electronic mail, dated February 6, 2007, Douglass Cooper, of my staff, submitted a detailed request for additional information regarding many activities proposed to be covered in the programmatic biological opinion, including details regarding the potential areas of impact, weed control methodology, revegetation plans for areas of disturbance, individual and programmatic scale thresholds for project inclusion under the biological opinion, and issues related to a Federal nexus for projects that would not receive Federal funding. In a telephone conversation between Douglass Cooper, Tom Edell (of your staff), and yourself, on April 11, 2007, Caltrans provided a portion of the information requested in the February 6, 2007, electronic correspondence. The outstanding issues remaining after this call were revegetation plans for areas of disturbance, including use of local seed, individual and programmatic scale thresholds for project inclusion under the biological opinion, and issues related to a Federal nexus for projects that would not receive Federal funding.

In a conference call involving me, Douglass Cooper, Jacob Martin, Tom Edell, and you, on August 7, 2007, the Service and Caltrans agreed to revised thresholds for the inclusion of projects under the biological opinion at both an individual project and programmatic scale. Caltrans also agreed to develop revised language pertaining to the use of native seeds for revegetation of disturbed areas. The Service agreed to pursue guidance from CNO (Regional Office) regarding a Federal nexus for maintenance activities that would not receive Federal funding. In an electronic mail, dated August 8, 2007, Tom Edell provided the revised language pertaining to the use of native seeds for revegetation of disturbed areas.

In an electronic mail, dated September 20, 2007, Douglass Cooper requested the qualifications of biologists that Caltrans proposed to act as biological monitors for activities covered under the biological opinion. In an electronic mail, dated October 4, 2007, Caltrans provided the qualifications for Tom Edell, Dave Hacker, and Mitch Dallas, for approval as qualified biologists.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Project Description

Activities addressed under this biological opinion would be conducted along a 75-mile stretch of Highway 1 between post miles (PM) 0.0 and 72.3 in Monterey County and PM 71.4 and 74.3 in San Luis Obispo County. The State highway right-of-way typically extends up to 40-feet from the centerline on both sides of the highway. Activities addressed under this biological opinion would

only be implemented within the State highway right-of-way and easements granted for construction or maintenance of facilities. An area extending 200-feet from the centerline on both sides of the highway has been surveyed for possible impacts. Typical maintenance activities are not expected to exceed these areas, but would be addressed on a project-by-project basis when impacts go beyond the highway right-of-way.

Caltrans performs maintenance, repair, and improvement activities on Highway 1, which they have determined may result in adverse effects to Smith's blue butterflies. A list of these activities is presented in Table 1. The primary activities proposed for evaluation under this biological opinion are vegetation control along the roadsides and maintenance and repair activities along the highway right-of-way.

Table 1. Highway Management Activities along the Big Sur Coast.

Category of Improvement	**Description**
Highway reconstruction and preservation	• Roadway rehabilitation, including grading, blading, and repaving the roadbed • Reconstruction of embankment or cut slopes, retaining walls, and rockfall protection systems • Culvert repair and rehabilitation • Pavement preservation • Operational and transportation management
Roadside reconstruction and preservation	• Shoulders, turnouts, parking areas, and other unpaved areas • Fences • Debris removal and disposal • Debris stockpiling • Detours • Temporary access roads
Traffic and safety	• Guardrails, markers, and crash attenuators • Signs for warning, regulating, or guiding traffic • Lighting or other electrical facilities • Debris barriers such as fencing, walls, cribbing, dikes, and rockfall nets • Sight distance improvements
Drainage and erosion control	• Drainage facilities such as culverts and ditches • Temporary stream flow or runoff diversions • Storm water mitigation • Erosion control measures • Bank and slope protection • Site restoration, including slope stabilization and revegetation

(Table 1 Continued)

Category of Improvement	Description
Facilities	• Public facilities, including safety roadside rest areas and vista points • Buildings and other facilities such as those for equipment, storage, and maintenance
Vegetation management	• Includes chemical, mechanical, and manual control • Invasive weed control • Special-status species protection
Emergency and storm damage repair	• Emergency road opening • Hazardous substances removal • Accident removal and repair

Vegetation would be reduced along road edges to improve sight lines for safety and aesthetic purposes. The vegetation control area is defined as a 10-foot buffer of the road edges. A variety of methods would be used to conduct vegetation control, including mechanical (e.g., mowing and scraping), manual (e.g., using chainsaws, trimmers, hand hoeing, grubbing, pruning, and hand pulling), and chemical (i.e., herbicides).

Maintenance and repair activities would typically occur along the paved surfaces, road-side edges (including the vegetation control area), and out to the edge of the highway right-of-way, which extends 40-feet from the centerline on both sides of the road. Emergency repairs or major maintenance and repair activities may also extend beyond the highway right-of-way up to the threshold criteria limits defined in this biological opinion.

Caltrans has proposed mitigation measures involving replanting seacliff buckwheat for impacts outside of the vegetation control area where adverse effects to Smith's blue butterflies will occur due to the removal of seacliff buckwheat. The replanting will occur in locations conducive to the establishment and long-term survival of buckwheat plants and Smith's blue butterflies, such as south-facing slopes with good sun exposure and wind shelter. Replanting will occur as close as possible to the original site of buckwheat removal, but outside of the vegetation control area or other areas where repeated disturbance or future activities are anticipated. Buckwheat will be replanted from seed or individual seedlings, at the discretion of the Service-approved biologist. If seedlings are used, a total of two seedlings will be planted for every one plant removed (2:1 replacement ratio by number of plants). Establishment is defined as survival to the end of the 5-year monitoring period. If buckwheat is replanted from seed, the total area occupied by buckwheat at the end of the 5-year monitoring period will be the same as the area of buckwheat plants removed (1:1 replacement ratio by area).

Caltrans will monitor revegetated areas and the immediate vicinity for invasive weed species every 6 months for the first year and annually thereafter for a total of 5 years. Any invasive weed species present, including seedlings, will be removed without damaging seacliff buckwheat plants. If the

replacement ratios or weed free conditions are not met at the end of the monitoring period, then corrective measures will be developed and implemented subject to approval by the Service.

Caltrans will also conduct revegetation efforts in all other disturbed areas that are outside of those impacted by buckwheat removal. Caltrans will reseed these disturbed areas with a native seed mix that includes seacliff buckwheat seed. Caltrans will monitor these disturbed areas and the immediate vicinity for invasive weed species every 6 months for the first year and annually thereafter for a total of 5 years. Any invasive weed species present, including seedlings, will be removed without damaging seacliff buckwheat plants.

Caltrans (2002) proposed site restoration guidelines as part of the Coast Highway Management Plan. The guidelines would help direct Caltrans operations in the areas of erosion control, revegetation, and site management at locations identified for restoration work. Every site would have its own restoration plan, specifically addressing the site's unique issues and concerns, incorporating a context sensitive solution, which can range from doing nothing and allowing natural regeneration to collecting local seed for later planting. The guidelines lay out a methodical approach to site restoration, developed with input from agencies including the California Coastal Commission, California Department of Parks and Recreation, U.S. Army Corps of Engineers, U.S. Forest Service, and the County of Monterey. The objectives of the guidelines would be: (1) to control soil erosion and prevent water pollution; (2) to preserve intact wildlife habitat along the Big Sur coast; to restore disturbed sites to encourage a cover of self-sustaining native vegetation; and (3) to manage disturbed sites to promote natural succession and limit the spread of noxious weeds. Where reseeding and replanting is necessary, Caltrans would utilize locally collected seeds from undisturbed areas adjacent to the restoration sites whenever feasible. A completed Site Restoration/Erosion Control Guidelines Checklist would be submitted to the Service with each request to use the programmatic biological opinion.

Caltrans will provide an annual written report to the Service documenting the type and location of activities that they conducted under this programmatic biological opinion. The report would provide information on the number of seacliff buckwheat plants and area of habitat adversely affected each year.

Suitability Criteria

To conduct a project under this programmatic biological opinion, Caltrans must ensure that the project satisfies the following criteria:

Criterion 1: Actions covered under this biological opinion may adversely affect Smith's blue butterflies through mortality or injury of individuals, temporary disturbance or permanent loss of seacliff buckwheat (*Eriogonum parvifolium*) host plants, or both. However, these actions must be limited in scope such that they do not contribute to a permanent decline of the species in the programmatic action area. Caltrans, FHWA, and the Service have previously consulted on numerous projects that have met these criteria. These projects include: retrofitting of bridges to reduce damage that may be caused by earthquakes; repair, widening, and replacement of bridges; repair of bank protection; replacement of low-flow stream crossings with bridges; small-scale

stabilization of stream slopes; minor improvement of drainage; replacement of culverts; rehabilitation of highway surfaces; and improvement of the safety and operation of highways.

Criterion 2: To qualify for use of the programmatic biological opinion, the measures to reduce or avoid adverse effects to Smith's blue butterflies provided in this biological opinion must be implemented; these measures may be modified on a project-specific basis upon the agreement of Caltrans and the Service.

Criterion 3: The projects must be single and complete projects and not part of larger actions or associated with other developments, such as housing subdivisions or golf courses.

Criterion 4: The projects must not, in the Service's view, take place in areas where populations of Smith's blue butterflies are so isolated that even the small effects described in this biological opinion may have substantial impacts.

Criterion 5: Individual actions covered under this biological opinion could directly or indirectly remove up to 2 acres of habitat containing seacliff buckwheat plants, or up to a maximum of 300 individual seacliff plants per activity, but no action shall remove more than 75 percent of all plants in the project and project buffer areas. The buffer area would extend 230 feet from the individual project area. An assessment describing the habitat and estimated number of plants within the buffer area will be provided with each request to use this programmatic biological opinion.

Criterion 6: Caltrans will reinitiate consultation when, as a result of the cumulative projects conducted under the provisions of this biological opinion, either 100 acres of seacliff buckwheat habitat have been permanently lost in total, or 15,000 individual seacliff buckwheat plants have been permanently removed.

If Caltrans determines that a project satisfies criteria one through five, and if the thresholds in criterion six have not been reached, it will request from the Service concurrence on this determination. The request for concurrence will include at a minimum a brief project description and an assessment of how the project fits this programmatic biological opinion. The Service will respond to Caltrans' requests within 30 days. Caltrans is required to initiate formal consultation with the Service for all projects that do not meet these six criteria.

Minimization of Adverse Effects

Caltrans will ensure that projects being implemented in accordance with this programmatic biological opinion will be designed to avoid or reduce adverse effects to Smith's blue butterflies and their habitat. At a minimum, the following measures will be taken to reduce adverse effects to Smith's blue butterflies and their habitat:

1. Caltrans will ensure that all construction activities follow well-defined procedures to avoid effects to the Smith's blue butterfly.

2. Caltrans will prohibit mowing and broadcast spraying of herbicide in stands of buckwheat. Within areas that contain buckwheat, control of invasive weeds, which is beneficial to buckwheat, will be achieved by spot spraying of herbicide and/or hand clearing.

3. Caltrans will ensure that only Service-approved biologists will participate in capture, handling, and monitoring of the Smith's blue butterfly, in all of its life stages, and the handling of buckwheat plants.

4. Caltrans will ensure that ground disturbance for maintenance or project activities will not begin within stands of buckwheat until a Service-approved biologist is on site.

5. Service-approved biologists will verify that the proposed work activity within stands of buckwheat meets all criteria established for use of this biological opinion.

6. For maintenance work or project activity within stands of buckwheat, a Service-approved biologist will survey the work site no more than 30 days before the onset of ground disturbance. If any life stage of the Smith's blue butterfly or its host plant, seacliff buckwheat, is found and is likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to relocate seacliff buckwheat plants, duff, and/or soil, from the site before work activities begin. The seacliff buckwheat plants, duff, and/or soil will be hand removed and placed as close as possible to, but not on, living seacliff buckwheat plants. The Service-approved biologist will relocate the seacliff buckwheat plants, duff, and/or soil the shortest distance possible to a location that contains suitable habitat and will not be affected by activities associated with the proposed project. The Service-approved biologist will maintain detailed records of the number of seacliff buckwheat plants that are moved.

7. Before any maintenance or project activity work begins within stands of buckwheat, a Service-approved biologist will provide training to all field personnel. At a minimum, the training will include a description of the Smith's blue butterfly and its habitat, the specific measures that are being implemented to conserve the Smith's blue butterfly, and boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

8. A Service-approved biologist will be present at the work site for maintenance or project activity within stands of buckwheat until all Smith's blue butterflies and seacliff buckwheat plants that are at risk due to project activities have been removed, workers have been instructed, and disturbance to habitat has been completed. After this time, Caltrans will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this monitor receives the training outlined in measure 7 and in the identification of the Smith's blue butterfly and its host plant, seacliff buckwheat. If the monitor or the Service-approved biologist recommends that work be stopped because the Smith's blue butterfly or seacliff buckwheat would be affected to a degree that exceeds the levels anticipated by Caltrans and the Service during review of the

proposed action, they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the unanticipated effect(s) immediately, or require that all actions causing these effects be halted. If work is stopped, the Service will be notified as soon as is reasonably possible.

9. An assemblage of native species will be used for revegetation of project sites. Seacliff buckwheat seed or plants will only be placed outside the vegetation control areas. The spread of invasive weeds during revegetation efforts will be controlled according to the Vegetation Management Guidelines (California Department of Transportation 2002) developed as part of the Big Sur Coast Highway Management Plan (California Department of Transportation 2004).

10. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Environmentally Sensitive Areas will be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to Smith's blue butterfly and seacliff buckwheat.

11. Caltrans will ensure that best management practices are implemented according to the most current approved guidelines to control erosion and sedimentation during and after project implementation. Under the California Interagency Noxious Weed Free Forage and Mulch Program (http://pi.cdfa.gov/weed/wff), California is taking steps to make noxious weed-free hay and straw widely available. Under this program, weed-free hay and straw bales would be used for erosion control measures when they become available.

STATUS OF THE SPECIES

The Smith's blue butterfly was listed as endangered by the Service on June 1, 1976. A recovery plan was published in 1984 (Service 1984). Critical habitat has not been designated. Detailed information regarding the biology of the Smith's blue butterfly can be found in Arnold (1978, 1980, 1983), Mattoni (1954, 1977), and Langston (1975).

The Smith's blue butterfly is dependent upon its host plant species, seacliff buckwheat and coast buckwheat (*Eriogonum latifolium*), during all life stages, except that adults may also feed on nectar from naked buckwheat (*E. nudum*). Smith's blue butterflies co-occur with coast and seacliff buckwheat plants that grow in coastal dune, cliffside chaparral, coastal scrub, and coastal grassland communities from the mouth of the Salinas River in Monterey County to San Carpoforo Creek in northern San Luis Obispo County. Smith's blue butterflies are notably absent from the Monterey Peninsula, although, historically, they have been observed just to the north at the Naval Postgraduate School and the south at Point Lobos State Reserve. Long-term monitoring has not occurred for any population of the Smith's blue butterfly. Most of our knowledge of the distribution of the Smith's blue butterfly is the result of singular observations made in the past 30 years. Therefore, the number, size, and persistence of colonies throughout the range of the species are poorly understood.

Synchronous with peak flowering of its buckwheat hosts, adult Smith's blue butterflies emerge from their pupal cases for a single flight season extending from mid-June to early September. Individual adults live for about 1 week, during which time they locate mates, court, and copulate. Females oviposit singly in individual flower heads. Larvae hatch 4 to 8 days after oviposition and feed on buckwheat flowers as they grow and molt through five instars. Between mid-August and early September, larvae pupate. The location where pupation occurs has not been adequately documented. Researchers have surmised that pupation occurs in the heads of flowers, adjacent to leaf or stem axils, in the duff, or several inches below the soil surface (Arnold 1980, Shields 1975). Larvae overwinter as pupae and emerge as adults the following flight season.

Like many other lycaenid butterflies, Smith's blue butterfly larvae are tended by ants during the third through fifth instars. The larvae produce a sugary secretion upon which the ants feed. In return, the ants are presumed to provide the larvae with protection from predation or parasitism. The importance of such ant associations to the Smith's blue butterfly is currently unknown.

Vegetation within the range of the Smith's blue butterfly is very dynamic, especially where stands of seacliff buckwheat occur. Seacliff buckwheat seedlings depend upon disturbances such as landslides and other erosional features for the development of site conditions favorable for germination and establishment. Landslides and mass wasting are common along the Monterey County coast and provide the disturbances required by seacliff buckwheat; conversely, these geologic activities can also destroy existing stands of seacliff buckwheat. The Smith's blue butterfly may benefit from some human disturbances when they mimic natural processes. The quality of habitat likely changes over relatively brief periods due to natural successional processes and, increasingly, due to the invasion of non-native plants. Over time, especially when disturbances are rare, stands of seacliff buckwheat are likely to be displaced by larger native shrubs on all but the harshest sites.

The role of dynamic processes in creating and maintaining habitat for the Smith's blue butterfly is poorly understood. Most likely, Smith's blue butterflies abandon areas where seacliff buckwheat is replaced by other vegetation. Adults would be expected to disperse and colonize new areas that contain adequate patches of host buckwheat plants. Arnold (1991) found that the density and age class distribution of seacliff buckwheat and coast buckwheat appear to be important determinants for the establishment and persistence of Smith's blue butterfly populations in some locations. Adult Smith's blue butterflies are neither strong nor active fliers; therefore colonies may become isolated if suitable habitat is not available nearby for dispersal and colonization.

The decline of the Smith's blue butterfly is attributed to degradation and loss of habitat as a result of urban development, recreational activities in dune habitats, sand mining, military activities, fire suppression in chaparral habitat, and encroachment of exotic plant species. Aggressive, disturbance-oriented invader species such as kikuyu grass (*Pennisetum clandestinum*), pampas grass (*Cortaderia jubata*), Cape ivy (*Delairea odorata*), and French broom (*Genista monspessulana*) are found on sites otherwise suitable for seacliff buckwheat and the Smith's blue butterfly. In sand dunes along Monterey Bay, non-native iceplant (*Carpobrotus* spp.) has covered hundreds of acres of formerly suitable habitat for the Smith's blue butterfly. The low vagility of adults, coupled with fragmentation of suitable habitat, reduce the probabilities of colonization events and migratory

exchange between populations. Due to the lack of long-term monitoring, the status of the Smith's blue butterfly must be assessed largely based on the status of habitat for the species.

In the northern portion of their range, Smith's blue butterflies currently occur at the Salinas River National Wildlife Refuge, in the Marina area (including Marina State Beach), on Fort Ord, and in Sand City (Service 2006). In the southern portion of their range, Smith's blue butterflies currently occur in Carmel Valley (including occupied sites at Garland Ranch Regional Park, the Santa Lucia Preserve, and Palo Corona Regional Park) (Service 2006) and along the Big Sur coast, including at least 69 sites between Cooper Point (in Monterey County near the border of Andrew Molera and Pfeiffer Big Sur State Parks) and San Carpoforo Creek (in northern coastal San Luis Obispo County) (Arnold 2002).

Several colonies of Smith's blue butterflies and some potential habitat are currently protected from at least some of the threats which led to listing. For example, large amounts of land that have supported known colonies of the Smith's blue butterfly are owned and managed by resource agencies. Along the Monterey Bay, these areas include the Salinas River National Wildlife Refuge, Monterey State Beach, Marina State Beach, and the coastal portion of the former Fort Ord. Further south, several occupied localities and at least 574 acres of habitat (Norman 1994, 1999, 2000; Service 2003) have been confirmed on the LPNF.

However, threats to the Smith's blue butterfly still exist, even at many of the sites that are protected from development pressures. Much of the species' habitat has been invaded and, in some cases, overtaken by invasive plants. At least 70 non-native plant species introduced during the past 200 years threaten habitat for the Smith's blue butterfly in both protected and unprotected areas throughout the sub-species' range.

Urban development, recreational activities, and other activities continue to result in habitat loss and degradation. Urban development, introduction of invasive plant species and recreational use have fragmented and continue to fragment habitat for the Smith's blue butterfly. This fragmentation has several ramifications for the Smith's blue butterfly. The quality of the remaining suitable habitat is reduced, the distance dispersing adults must travel to reach the next island of suitable habitat is increased, the entire metapopulation structure is potentially disrupted, and genetic diversity is reduced. Overall, groups of Smith's blue butterflies occupying smaller, more isolated stands of suitable habitat are more likely to be extirpated by stochastic or anthropogenic factors.

ENVIRONMENTAL BASELINE

Definition of Action Area

The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action [50 Code of Federal Regulations (CFR) 402.02]. For the purposes of this biological opinion, we consider the action area to include all areas where people and equipment would be working. Based on the information provided to us, we identify the action area as areas adjacent to California State Highway 1 between post PM 0.0 and 72.3 in Monterey County and PM 71.4 and

74.3 in San Luis Obispo County. The state highway right-of-way typically extends 40-feet from the centerline on both sides of the highway. The action area would include this highway right-of-way as well as an additional buffer area extending 230 feet beyond the highway right-of-way. The majority of the land adjacent to this 75-mile stretch of highway is managed by the U.S. Forest Service, the California Department of Parks and Recreation, the University of California Natural Reserve System, the El Sur Ranch, and the Packard Family.

Smith's blue butterfly

The action area is located within the range of the Smith's blue butterfly and includes suitable habitat, including seacliff buckwheat plants. Caltrans conducted habitat assessments for the Smith's blue butterfly, and its host plant, seacliff buckwheat, along the entire length of the Highway 1 corridor (Caltrans 2004). The locations of buckwheat stands of medium or high relative density were most often in central coastal scrub communities and along roadcuts; however, they were also found in coastal sage-chaparral scrub communities, and ruderal/disturbed areas. Small stands of buckwheat with a low relative density comprised the majority of the observations. Although these smaller stands may not be capable of supporting viable populations of the Smith's blue butterfly, they may be capable of providing necessary resources for dispersing butterflies (Kellner 1989, Arnold 1991).

Along the 75-mile stretch of highway along the Big Sur Coast that comprises the project area, Caltrans has estimated the proposed vegetation control area, which is defined as a 10-foot wide buffer beyond the edge of the paved roadway, is a maximum of approximately 188 acres. Of this total area, approximately 112 acres either contain or are adjacent to areas that are known to contain buckwheat; approximately 76 acres are along areas where buckwheat has been documented as absent. The entire action area includes a buffer extending 230 feet beyond the highway right-of-way. Excluding paved roadway, which averages 24 feet wide, the buffer plus the highway right-of-way totals 4,691 acres.

The California Natural Diversity Database (California Department of Fish and Game 2007) includes thirty-eight records of Smith's blue butterfly within the action area vicinity. During a 1989 survey for Smith's blue butterfly along the Big Sur coast in Monterey County, 39 individual butterflies were observed at 23 localities (Kellner 1989).

EFFECTS OF THE ACTION

Activities that are evaluated under this biological opinion are those that would not cause ecosystem-scale changes and are not likely to contribute to the decline of the Smith's blue butterfly. Direct and indirect impacts to the Smith's blue butterfly of projects covered by this biological opinion could include mortality and injury of adults, pupae, and larvae, as well as mortality and injury to Smith's blue butterfly host plants.

Smith's blue butterfly adults may be crushed by vehicles and heavy equipment if they fly into the project area during construction activities. Road improvement and maintenance generates dust that could drift on to seacliff buckwheat plants. The presence of dust may affect Smith's blue butterfly

adults and may cause them to leave the area. Deposition of dust on seacliff buckwheat plants may reduce the palatability of those plants for feeding larvae.

Seacliff buckwheat plants may be removed during the proposed road repair. If those plants are occupied, Smith's blue butterflies could be crushed, buried, or otherwise killed during their removal. Smith's blue butterflies may also be adversely affected through a loss of foraging habitat and increase in habitat fragmentation due to removal of host plants. We expect that cutting and moving the affected seacliff buckwheat plants will reduce these effects; however, individual Smith's blue butterflies may be killed during the relocation of cut seacliff buckwheat plants. Removal of seacliff buckwheat plants could also result in the death of pupae of the Smith's blue butterfly if those plants are occupied. Moving entire plants and placing them adjacent to live seacliff buckwheat and collecting and moving all duff from translocated plants should minimize mortality of pupae and emerging adults.

Ground disturbance due to construction could facilitate the spread of invasive plants, which could compete with seacliff buckwheat and thereby degrade habitat for the Smith's blue butterfly. However, the proposed vegetation management is designed to control invasive plants.

Up to 100 acres of Smith's blue butterfly habitat could be disturbed by project activities. Removal of the host plant for the Smith's blue butterfly, seacliff buckwheat, would result in lost breeding, foraging, and dispersal habitat. These habitat losses would be temporary in nature, because Caltrans will revegetate all disturbed areas with buckwheat plants, seedlings, or seed. Caltrans will also include buckwheat seeds in revegetation areas that did not suffer buckwheat removal, which could lead to increased habitat availability for the Smith's blue butterfly.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Act. We are not aware of any non-Federal actions that are reasonably certain to occur in the action area.

CONCLUSION

After reviewing the current status of the Smith's blue butterfly, the environmental baseline, the effects of the projects that could be conducted under the provisions of the proposed programmatic consultation, and the cumulative effects, it is the Service's biological opinion that the projects that could be proposed by Caltrans are not likely to jeopardize the continued existence of the Smith's blue butterfly.

We have reached this conclusion because:

1. Caltrans has proposed measures to reduce the adverse effects of the proposed activities on the Smith's blue butterfly; and,

2. In comparison with the amount of habitat available to the Smith's blue butterfly in Monterey and San Luis Obispo Counties, a relatively small amount of habitat is likely to be permanently lost or temporarily disturbed.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits any taking (i.e., to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of listed species without special exemption. Harm is further defined to include significant habitat modification or degradation that results in the death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act, provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by Caltrans for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans fails to implement the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

We anticipate that incidental take of the Smith's blue butterfly may occur as a result of the following activities that are evaluated in this biological opinion: removal or destruction of important habitat features, soil excavation and grading, burial, trampling or crushing from equipment and foot traffic, limited removal of vegetation, or use of equipment. If the amount of anticipated incidental take (as discussed below) is exceeded, the exemption from the prohibition against take provided by this biological opinion may lapse.

The number of individual Smith's blue butterflies that could be killed is unknown because the timing, location, duration, and number of actions covered by this biological opinion are unknown at this time. However, we anticipate that incidental take may occur. Based on the limits on host plant removal proposed by Caltrans and described in the Description of the Proposed Action section of this biological opinion, we anticipate the following levels of incidental take may occur as a result of the implementation of Caltrans' proposed action.

1. Individual actions evaluated under this biological opinion could result in harm, injury, or mortality of all Smith's blue butterflies associated with the removal of up to 2 acres of habitat containing seacliff buckwheat plants, or up to a maximum of 300 individual seacliff buckwheat plants, per activity.

2. The cumulative impact for all projects tiered under this biological opinion could result in harm, injury, or mortality of all Smith's blue butterflies associated with the removal of up to either 100 acres of seacliff buckwheat habitat permanently lost, or 15,000 individual seacliff buckwheat plants permanently removed.

As proposed by Caltrans, if the maximum limit of take is reached over the life of the program, all projects that include habitat for the species in question would stop and formal consultation between Caltrans and the Service would be re-initiated for that species. Consultation should be reinitiated when take has reached a level of 10 percent short of the maximum cumulative limit, to allow for continuation of individual projects.

REASONABLE AND PRUDENT MEASURES

We believe the following reasonable and prudent measures are necessary and appropriate to minimize take of Smith's blue butterflies during the proposed operation, repair, and maintenance activities conducted by Caltrans within the Highway 1 corridor:

1. Caltrans must use well-defined operational procedures, education programs, and qualified personnel to minimize the incidental take of Smith's blue butterflies during the ongoing maintenance, and repair of roads.

2. Caltrans must ensure that the level of incidental take that occurs during project implementation is commensurate with the analysis contained herein.

Our evaluation of the effects of the proposed action includes consideration of the measures to reduce the adverse effects of the proposed action on the Smith's blue butterfly that were developed by Caltrans and outlined in the Description of the Proposed Action section of this biological opinion. Any subsequent changes in the measures proposed by Caltrans may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by Caltrans as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with or ensure that any contractors comply with the following terms and conditions, which implement the reasonable and prudent measures described above and the reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following term and condition implements reasonable and prudent measure 1.

   Only qualified individuals authorized under this biological opinion may survey for seacliff buckwheat, remove seacliff buckwheat plants, and collect and place duff. Tom Edell, Dave Hacker, and Mitch Dallas are hereby authorized to conduct these activities. Caltrans must supply the credentials of any additional proposed qualified individuals to the Service for our

review and approval at least 15 days prior to the onset of the activities for which authorization is being sought.

2. The following term and condition implements reasonable and prudent measure 2.

If more than three (3) Smith's blue butterflies are found dead or injured, Caltrans must notify the Ventura Fish and Wildlife Office immediately. We will then review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by Caltrans and the terms and conditions of this biological opinion have been, and continue to be, implemented.

REPORTING REQUIREMENTS

For each year this biological opinion is in effect, Caltrans must provide a written annual report to us by January 31 of the following year. The report must contain information on the following: 1) the type of activities that occurred in the action area (e.g., maintenance and construction activities, mitigation, monitoring, etc.); 2) the location of these activities; 3) a description of the habitat in which these activities occurred; 4) steps taken to avoid or minimize effects; 5) the area and number of individuals of seacliff buckwheat that were affected; and, 6) universal transverse mercator (UTM) coordinates for any listed species encountered. The first report will be due the first January after the initiation of activities.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Upon locating a dead Smith's blue butterfly, initial notification within 3 working days of its finding must be made in writing to the Service's Division of Law Enforcement (370 Amapola Avenue, Suite 114, Torrance, California 90501) and by telephone and writing to the Ventura Fish and Wildlife Office (2493 Portola Road, Suite B, Ventura, California, 93003, (805) 644-1766). The report must include the date, time, location of the specimen, cause of death, if known and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state. Caltrans must endeavor to place the remains of Smith's blue butterflies with educational or research institutions holding the appropriate State and Federal permits. Arrangements regarding proper disposition of potential museum specimens must be made between Caltrans and the institution as soon as possible after receipt of this biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service has the following conservation recommendations:

1. Caltrans should require or encourage contractors and agencies conducting work on highways to protect other sensitive species during the implementation of these projects.

2. Caltrans should participate in any regional planning efforts for the Smith's blue butterfly to attempt to recognize, at an early stage of planning, where conflicts between conservation of the Smith's blue butterfly and future transportation planning may arise.

The Service requests notification of the implementation of any conservation recommendations, so we may be kept informed of actions that minimize or avoid adverse effects to or benefit the Smith's blue butterfly and its habitat.

REINITIATION NOTICE

This concludes formal consultation on Caltrans operation, repair, and maintenance projects on California Highway 1 that are likely to adversely affect the federally threatened Smith's blue butterfly. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law), and if (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the agency action may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the agency action is subsequently modified in a manner that causes an effect on listed species or critical habitat that was not considered in this opinion, or (4) a new species is listed or critical habitat is designated that may be affected by the action.

If you have any questions, please contact Douglass Cooper of my staff at (805) 644-1766, extension 272.

Sincerely,

David M. Pereksta
Assistant Field Supervisor

cc: Gene K. Fong, Division Administrator, FHWA
Tom Edell, Associate Biologist, Caltrans District 5

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